IDEAL INDIAN SCHOOL, DOHA-QATAR
PERIODIC TEST- 1 (JUNE 2024)
MATHEMATICS (041)

Class: IX | **SET - 2** | **Max. Marks: 40**
Date: 05/06/2024 | **Time: 2 hrs.**

General Instructions

1. The Question Paper contains five sections, Sections A, B, C, D and E.
2. Section A has 10 MCQs carrying 1 mark each.
3. Section B has 2 questions carrying 2 marks each.
4. Section C has 4 questions carrying 3 marks each.
5. Section D has 2 questions carrying 5 marks each.
6. Section E has 1 case-based question (4 marks each) with subparts of the values of 1,1and 2 marks each respectively.
7. All questions are compulsory. However, an internal choice in 1 Question of 5 marks, 1 question of 3 marks and 1 question of 2 marks has been provided.

SECTION A

Choose the most appropriate answers for the following. $10 \times 1 = 10$

1. Which of the following is binomial with degree 101?

a. $x^{100} - y^3$ b. $t^{101} - 5t$ c. $p^{100}q^2 - 11$ d. None of these

2. The perpendicular distance of the point P(7, 9) from the *x*-axis is :

a. 9 b. 7 c. 3 d. -7

3. The area of a triangular sign board of sides 5 cm, 12 cm and 13 cm is**:**

a. 60 cm^2 b. 30 cm^2 c. 15 cm^2 d. $\frac{65}{2} cm^2$

4. How many irrational numbers lie between two rational numbers?

a. 0 b. 1 c. -3 d. Infinite

5. If $(a - 3, 2b + 7) = (-3, 5)$, then the value of $a - b$ is

a. -2 b. 2 c. 1 d. 0

6. The rational number $0.\overline{3}$ can also be written as

a. 0.3 b. 0.33 c. $\frac{1}{3}$ d. $\frac{3}{10}$

7. The perimeter of an equilateral triangle is 60 m. Its area is _____.

a. $100\sqrt{3}\ m^2$ b. $400\sqrt{3}\, m^2$ c. $900\sqrt{3}\, m^2$ d. $150\sqrt{3}\ m^2$

8. What is the degree of a constant polynomial?

a. 0 b. 1 c. Any number d. Not defined

9. Make the correct choice.

Assertion: If $(x + 1)$ is a factor of $f(x) = x^2 + ax + 2$, then a = -3.
Reason: If $(x + a)$ is a factor of $p(x)$, then $p(a) = 0$.

a. Statement-1 is true, Statement-2 is true; Statement-2 is a correct explanation for statement-1
b. Statement-1 is true, Statement-2 is true; Statement-2 is not a correct explanation for statement-1
c. Statement-1 is true, Statement-2 is false
d. Statement-1 is false, Statement-2 is true

10. The ordinate of all the points on the x- axis is

a. -1 b. 0 c. -1 d. any number

SECTION B **$2 \times 2 = 4$**

11. Represent $\sqrt{11.5}$ on the number line.

12. Expand using identity: $(3x + 4y - z)^2$

OR

If $2y - 1$ is a factor of $g(y) = 16y^3 - 14y^2 + 6y - 3k$, find the value of k.

SECTION C **$4 \times 3 = 12$**

13. Factorise :

(i) $x^3 - 216y^3 - 18x^2y + 108xy^2$

(ii) $25p^2 + q^2 + 16r^2 + 10pq - 8qr - 40pr$

14. Evaluate: $7\sqrt[4]{625} - 2\sqrt{169} + 5\sqrt[6]{729} - 4\sqrt[3]{1331}$

OR

Simplify $(2\sqrt{3} - 3\sqrt{2})^2 + (2\sqrt{3} + 3\sqrt{2})^2$

15. Name the Quadrant or the Axis in which the points (2, 3), (4, -3), (-2 , -2), (-1, 3), (0, 5), (2, 0) lie.

16. The sides of a triangle are 8cm, 15cm and 17 cm. Find the length of the perpendicular from the opposite vertex to the shortest side.

SECTION D **$5 \times 2 = 10$**

17. Simplify: $\frac{2\sqrt{3}}{\sqrt{3}-\sqrt{2}} + \frac{3\sqrt{2}}{\sqrt{3}+\sqrt{2}} - 5\sqrt{6}$

18. Factorise: $x^3 - 4x^2 + x + 6$.

OR

Factorise: $2y^3 + y^2 - 2y - 1$

SECTION E **$4 \times 1 = 4$**

19. Case Study: UFO's are any unexplained moving object observed in the sky, especially one assumed by some observers to be of extraterrestrial (coming from a place outside the plane earth) origin. Rahul, student of class IX has an interest in Space Science. So, he makes a model of a triangular shape of a UFO which is shown in the figure. The measurements of the sides of the UFO are in the ratio 5:5:8 and its perimeter is 180 cm respectively.

(i) What is the type of triangle the UFO resembles?

(ii) Find the semi perimeter of the given UFO shape.

(iii)What are the dimensions of the model?

OR

What is the area of the UFO model?